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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/523,385	02/01/2005	Johannes Otto Voorman	NL 020728	4142

24737 7590 05/09/2006

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
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EXAMINER

LAMB, CHRISTOPHER RAY

ART UNIT	PAPER NUMBER
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2627

DATE MAILED: 05/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/523,385	Applicant(s) VOORMAN ET AL.	
	Examiner Christopher R. Lamb	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 February 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2 total</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "low pass filter located between at least one sequential-logic circuit and said at least one analog adder/subtractor" (claim 5) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
3. The drawings are objected to because the unlabeled rectangular boxes shown in the drawings should be provided with descriptive text labels.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

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application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 7, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishibashi et al. (US 5,808,979).

Regarding claim 1:

Ishibashi discloses an optical disk system (Fig. 1) comprising:

at least one photo detector for detecting at least a part of said optical disk (Fig. 1:

1) and in response generating detection signals (Fig. 1: SA to SD) and

comprising at least one amplifier for amplifying detection signals (Fig. 1: 5a and 5b contain amplifiers, as shown in Fig. 2A) and

comprising at least one slicer for slicing amplified detection signals (Fig. 1: 7a, 7) and

comprising at least one delay-difference detector for detecting delay differences in sliced amplified detection signals (Fig. 3: 1; Fig. 4),

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characterized in that said delay-difference detector is delaylineless and comprises combinatorial-logic circuits and sequential-logic circuits (there are no delay lines in Fig. 4; 18 and 19 are combinatorial-logic circuits; 20 and 21 are sequential logic circuits).

Regarding claim 6:

All elements positively recited have already been identified with respect to claim 1.

Regarding claim 9:

This is a method claim corresponding to claim 1, and is met when the system operates.

Regarding claim 10:

The method of Ishibashi is characterized in that said step of detecting delay differences comprises the substeps of detecting delay differences between rising edges and of detecting delay differences between falling edges (column 4, lines 35-63).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tateishi (US 6,775,210) in view of Ishibashi et al. (US 5,808,979).

Regarding claim 1:

Tateishi discloses an optical disk system (Fig. 1) comprising at least one photo detector for detecting at least a part of said optical disk (Fig. 1: 11) and in response generating detection signals (Fig. 1) and comprising at least one delay-difference detector for detecting delay differences in detection signals (Fig. 1: 14; Fig. 2), characterized in that said delay-difference detector is delaylineless and comprises combinatorial-logic circuits and sequential-logic circuits (there are no delay lines in Fig. 2; the invertors and or gates are combinatorial-logic circuits; the flip-flops are sequential logic circuits).

Tateishi does not disclose:
at least one amplifier for amplifying detection signals and at least one slicer for slicing amplified detection signals.

Ishibashi discloses amplifiers for amplifying detection signals (Fig. 1: 5a, 5b) and slicers for slicing amplified detection signals (Fig. 1: 7a, 7b). Ishibashi discloses that these elements improve the signal-to-noise ratio of the signal (column 2, lines 10-23).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Tateishi at least one amplifier for amplifying detection signals and at least one slicer for slicing amplified detection signals, as taught by Ishibashi.

The motivation would have been to improve the signal-to-noise ratio.

Regarding claim 2:

Tateishi discloses that said delay-difference detector comprises a first pair of sequential-logic circuits for detecting delay differences between rising edges (Fig. 2: Q1

and Q2) and comprises a second pair of sequential-logic circuits for detecting delay differences between falling edges (Fig. 2: Q3 and Q4).

Regarding claim 3:

Tateishi discloses that said delay-difference detector further comprises at least one analog adder/subtractor for adding/subtracting sequential-logic circuit output signals (Fig. 1: 15, 16).

Regarding claim 4:

Tateishi in view of Ishibashi discloses an optical disk system as discussed above.

Tateishi in view of Ishibashi does not disclose "at least one low pass filter coupled to an output of said one analog adder/subtractor."

Ishibashi discloses at least one low pass filter coupled to an output of one analog adder/subtractor (Fig. 1: 9; the analog adder/subtractor is visible in Fig. 4). Ishibashi discloses that this filter smooths the difference signal (column 5, lines 11-14), helping achieve a high signal to noise ratio (column 2, lines 11-23).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Tateishi in view of Ishibashi at least one low pass filter coupled to an output of said one analog adder/subtractor.

The motivation would have been to achieve a high signal to noise ratio, as disclosed by Ishibashi.

Regarding claim 5:

Tateishi in view of Ishibashi discloses an optical disk system as discussed in claim 1 above.

Tateishi in view of Ishibashi does not disclose "at least one low pass filter located between at least one sequential-logic circuit and said at least one analog adder/subtractor."

Ishibashi discloses a low pass filter located after the phase comparator (Fig. 1: 9). Ishibashi discloses that this filter smooths the difference signal (column 5, lines 11-14), helping achieve a high signal to noise ratio (column 2, lines 11-23).

It would have been obvious to one of ordinary skill in the art to include in Tateishi in view of Ishibashi at least one low pass filter located after the phase comparator, and thus located between at least one sequential-logic circuit and at least one analog adder/subtractor (the sequential-logic circuits are instead Tateishi's phase comparator, and analog adder/subtractors 15,16 follow the phase comparator).

The motivation would have been to achieve a high signal to noise ratio, as disclosed by Ishibashi.

Regarding claims 6-8:

All elements positively recited have already been identified with respect to claim 1-3.

Regarding claims 9-10:

These are method claims corresponding to early apparatus claims and are met when the system operates.

Regarding claim 11:

It is inherent to Tateishi (Tateishi does not specifically discuss this, but in Fig. 1 the photodetector is clearly depicted with subdetectors segmented by division lines

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positioned at 45 degree angles). Alternatively, if the Applicant can persuade the Examiner that it is not inherent, claim 11 can be rejected as follows.

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tateishi in view of Ishibashi as applied to claim 1 above, and further in view of Ma et al. (EP 1096481 A1; disclosed in IDS).

Tateishi in view of Ishibashi discloses an optical disk system as discussed above.

Tateishi in view of Ishibashi does not disclose "that said photo detector comprises several subdetectors segmented by division lines which are positioned as titled by an angle in a range $45 \pm (0-40)$ degrees with respect to a track direction for said generating of detection signals for reading data from said optical disk."

Ma discloses a photo detector comprising several subdetectors segmented by division lines which are positioned as titled by an angle in a range $45 \pm (0-40)$ degrees with respect to a track direction for said generating of detection signals for reading data from said optical disk (for example, Fig. 7, Fig. 8).

Ma discloses that this reduces crosstalk noise (paragraph 15).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Tateishi in view of Ishibashi that said photo detector comprises several subdetectors segmented by division lines which are positioned as titled by an angle in a range $45 \pm (0-40)$ degrees with respect to a track direction for said generating of detection signals for reading data from said optical disk.

The motivation would have been to reduce crosstalk noise, as disclosed by Ma.

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9. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishibashi et al. in view of Ma et al.

Ishibashi discloses an optical disk system as discussed above.

Ishibashi does not disclose "that said photo detector comprises several subdetectors segmented by division lines which are positioned as titled by an angle in a range $45 \pm (0-40)$ degrees with respect to a track direction for said generating of detection signals for reading data from said optical disk."

Ma discloses a photo detector comprising several subdetectors segmented by division lines which are positioned as titled by an angle in a range $45 \pm (0-40)$ degrees with respect to a track direction for said generating of detection signals for reading data from said optical disk (for example, Fig. 7, Fig. 8).

Ma discloses that this reduces crosstalk noise (paragraph 15).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Ishibashi that said photo detector comprises several subdetectors segmented by division lines which are positioned as titled by an angle in a range $45 \pm (0-40)$ degrees with respect to a track direction for said generating of detection signals for reading data from said optical disk.

The motivation would have been to reduce crosstalk noise, as disclosed by Ma.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (572)

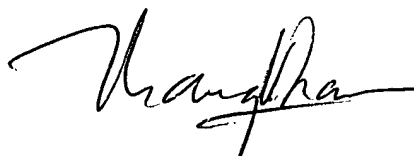
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272-5264. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CRL 5/8/06



THANG V. TRAN
PRIMARY EXAMINER